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Interaction of secreted aspartic proteinase Candida albicans with ZnCl2: Complex formation and catalytic activity

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Abstract

The aim of work is to estimate ion Zn(II) influence on catalytic activity of secreted aspartic proteinase Candida albicans (SAP2). System ZnCl2 - SAP2 showed complex formation. Composition of [ZnmSAP2n] complex was 1:1, the stability constant was 4.73±0.20. Affinity constants in system SAP2 - human serum albumin (HSA) - ZnCl2 were determined at Skatchard coordinates. The SAP2 was found to have a one section for linking with the substrate and one section for linking with modulator. The affinity constants in SAP2 - HSA system decreased in presence of ZnCl2. Complex forming of SAP2 - ZnCl2 system resulted in reduction of enzyme-substrate bonding. Proteolytic activity of SAP2 towards HSA at presence ZnCl2 as modulator was estimated. The inhibition effect in range 1×10-4 - 4×10-6 and 6×10-7 - 1×10-8 M was observed. The SAP2 activation effect catalyzed by ZnCl2 at 5×10-7 - 5×10-6 M concentrations were fixed for the first time. © IDOSI Publications, 2013.

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Keywords

Enzyme activity, Metal complex, Proteinase Candida albicans, Zinc ion